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BETTER FRUIT

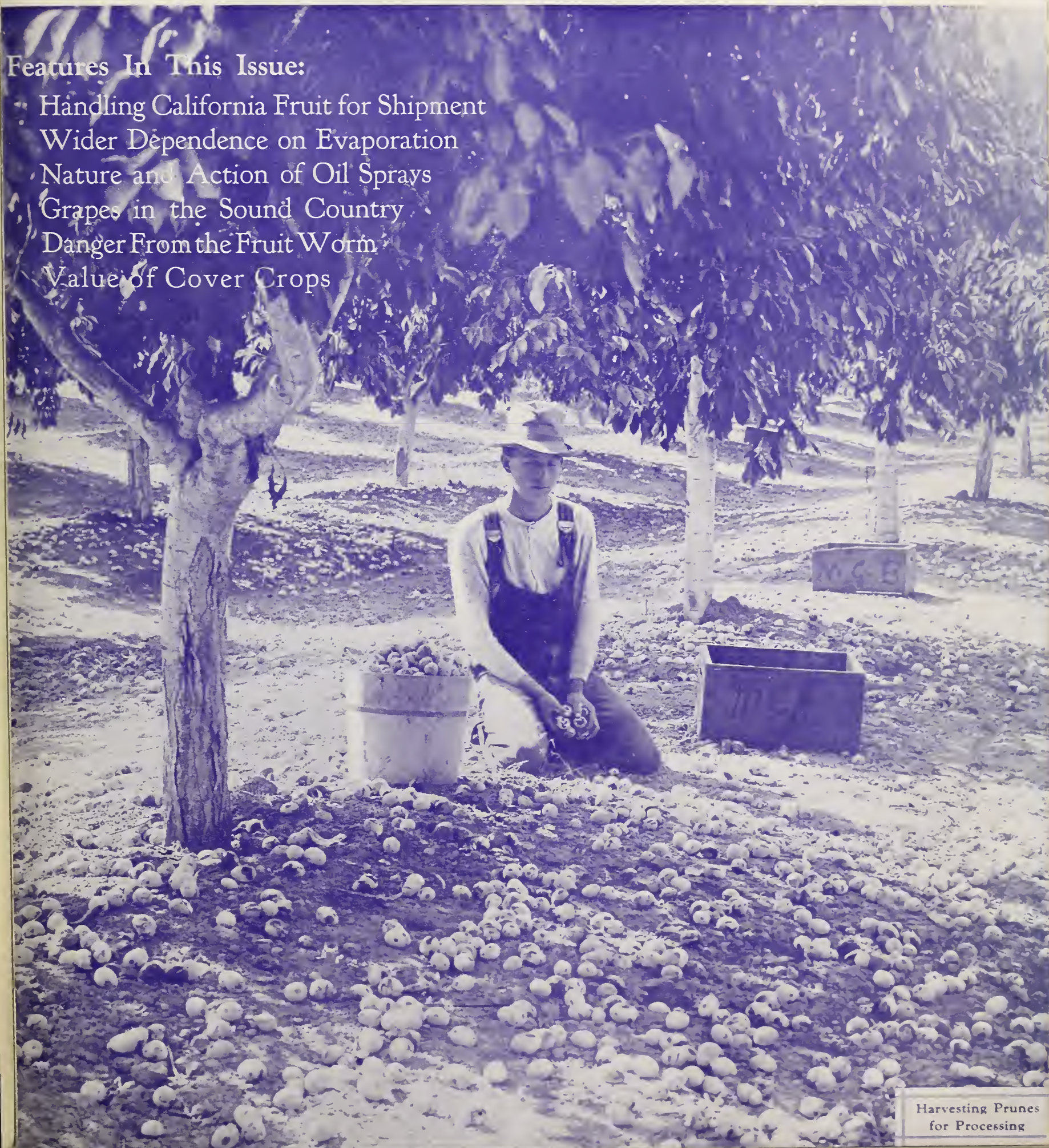
The Pioneer Horticultural Journal of the Northwest

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Features In This Issue:

- Handling California Fruit for Shipment
- Wider Dependence on Evaporation
- Nature and Action of Oil Sprays
- Grapes in the Sound Country
- Danger From the Fruit Worm
- Value of Cover Crops



Harvesting Prunes
for Processing

Endurance

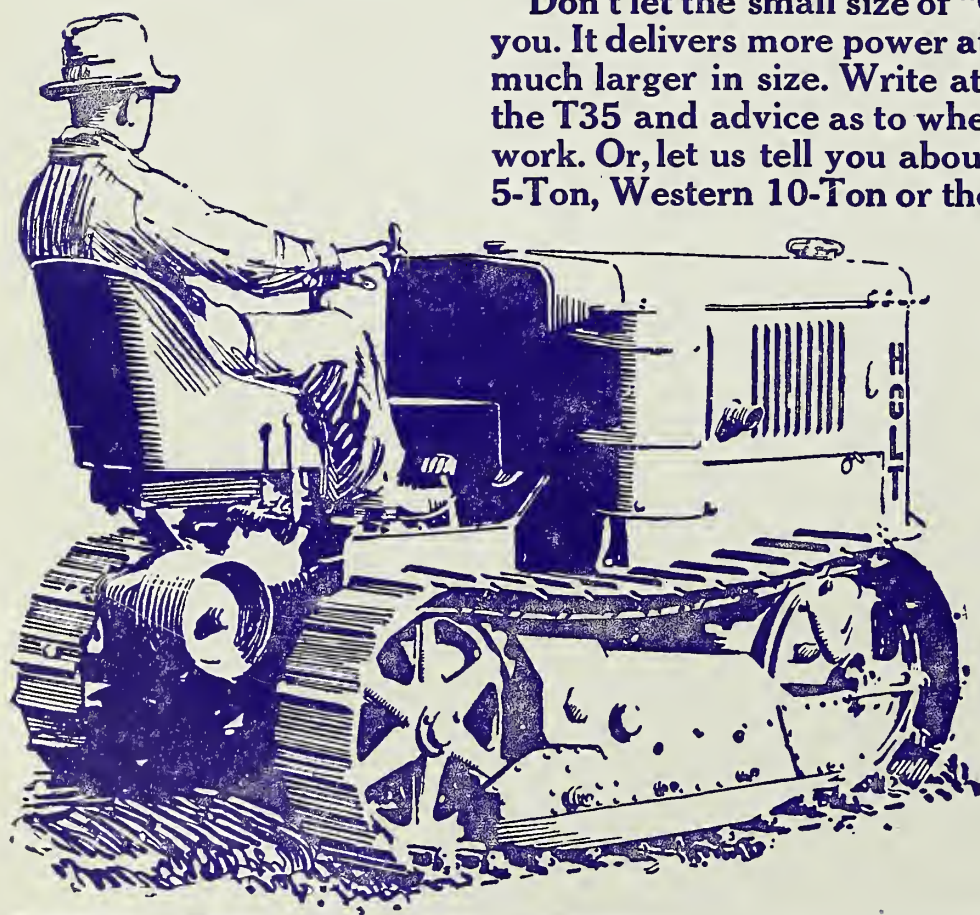
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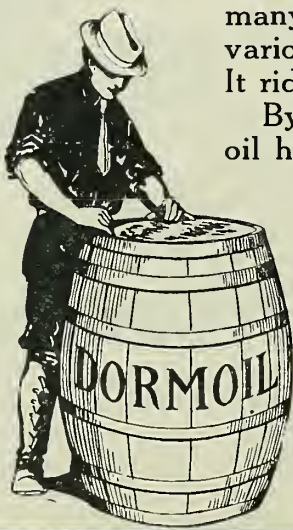
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BETTER FRUIT

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Handling California Fruit for Shipment

By W. P. DURUZ

Pomology Division, University of California

THE successful marketing of California fruit is dependent upon proper methods of harvesting, packing and handling from the time it leaves the tree until it reaches the ultimate consumer. It became apparent very early in the shipment of California fruits that close attention to quality and condition was of vital importance because of the great distance our products must be transported in order satisfactorily to compete with fruit from other states. Through many years, California fruit has been very popular and its popularity is increasing as shown by the constant gain in carlot shipments.

This increasing consumption of California fruits is due to several factors which include growing of first quality products, standardization of pack and packages, proper methods of picking and handling, improved loading regulations, organization and co-operation of growers; efficient advertising, wider distribution and consumption of fruit and fruit products.

It is the purpose of this article to set down some of the most important features of the best methods of picking, packing, and handling the various deciduous fruits that are shipped out of California in a fresh state.

Picking

APPLES—The time of picking apples is markedly influenced by the variety, season, climate and distance of shipping. The peculiar traits of each variety must be learned to determine the proper stage of maturity. For example, the Gravenstein and McIntosh have a tendency to fall before ripening and the Jonathan, Wealthy, Winesap and Grimes Golden, at the time of ripening, while many apples, like the Delicious, develop core rot if allowed to hang too long. Varieties like the Northern Spy and Ben Davis may hang a little while after maturity before picking.

In general, a little brown color on the seeds is taken as the indication of the

time of picking most varieties. Color of the fruit is also taken into consideration by many growers, while others rely on the ease with which the apple may be separated from the spur.

The fruit is harvested by hand by a simple bending or twisting motion with the thumb against the stem. Apples are never jerked or pulled from the spur, as this is likely to pull out the stem, which lowers the grade of the fruit. The picking receptacles most commonly used are the tin or galvanized iron pails, baskets and bags. The picking bags are growing in popularity because they allow freedom of the hands in picking.

APRICOTS—With apricots, color and size indicate the proper time of picking. The undercolor should be just turning yellow or straw. Apricots should not be allowed to become too ripe for they quickly "fall down" and rot in transit; likewise, they fail to attain good quality if picked too green. Apricots are picked carefully by hand and gently placed in the picking pail or basket. Never thrown or dropped. The trees are picked three to five times, depending upon the rapidity with which the fruit ripens.

CHERRIES—Sweet cherries are picked when nearly mature and have the charac-

teristic color for the variety. The greatest care must be exercised in picking cherries for they are easily bruised and quickly spoil when injured. Cherries are picked with the stems attached, for if the stems are removed, juice exudes and the fruit rapidly deteriorates.

In picking, the cherries are seized at the base of the stem with the thumb and the forefinger and turned back against the spur, care being exercised not to injure the unripe fruits in the same cluster or break the spur. At the first picking only a few cherries are ripe. At the second picking the bulk of the crop is harvested, and the balance at the third and fourth pickings. Cherries should be picked when perfectly dry, for wet fruit develops brown rot and mildew, and one moist cherry may spoil a whole box.

The best picking receptacle is the cherry picking cup which straps to the waist of the picker. It has one side concaved so as to fit the body of the picker; thus it is easily carried and allows the use of both hands in picking.

FIGS—Fresh figs are a delicious luxury and there is considerable demand for them. They are difficult to ship however, unless handled with exceeding care. If properly handled they may be shipped thousands of miles. For long distance shipping, figs are picked when fully mature, yet before they have begun to shrivel. If picked prematurely, figs become sour, while if too ripe they begin to dry, but do not as a rule decay. They are carefully selected by the pickers and placed in the picking pails with utmost care. Fig leaves are placed on each layer in the pail so as to prevent undue bruising. The figs are best transferred to the packing-house in the picking receptacle but sometimes are placed in lug boxes which are padded with fig leaves. This practice involves another handling however, which, with figs, is undesirable.

PEACHES—Peaches sell best when they show the highest color; but for long

In a concise summary Professor Duruz here outlines the prevailing California methods in picking, packing and shipping fresh fruits. The article deals more particularly with methods pursued where the fruits are to be shipped long distances, as to the eastern markets. Greater detail would easily be possible, but the important points are quite thoroughly covered. For the beginner in the fruit game there are many points of value and for the old-timer there are chances for comparison with the methods familiar to him.

shipments, fruit that is very highly colored would probably be over-ripe. The proper time of picking most varieties of peaches is governed by the "undercolor" or shaded portion of the fruit. Yellow-fleshed peaches, when ready for picking, show the undercolor changing to yellow or golden yellow; white fleshed peaches should show a light green or silvery white on the side away from the sun. Peaches should never be picked according to firmness of the fruit as determined by pressure with the hand, as the slightest bruise hastens decay.

Peaches should be of uniform maturity for maximum speed in packing; otherwise they must be sorted by the packers which entails extra expense and reduces the rate of packing. An experienced picker readily recognizes the color of each variety which indicates the proper degree of maturity, so that he loses no time in deciding which to pick and which to leave on the tree.

PEARS—Unlike most other fruits, the pear develops much better quality when ripened off the tree. Most of our commercial varieties, if allowed to ripen on the tree, become granular and also develop core rot. The time of picking is dependent upon size, condition and sugar content. The larger varieties like the Anjou, Bartlett, Bosc, Comice, and Howell, are generally picked when they attain a diameter of from $2\frac{1}{4}$ to $2\frac{1}{2}$ inches or more. Many growers are guided in picking by the readiness with which the pear may be separated from the spur when it is raised upward; others like to see a little brown on the seeds; still others test by tasting.

Pears for eastern shipment are harvested in several pickings, the largest ones being picked first and the smaller ones left on the tree to attain greater size. Some pickers are using picking rings. Those that pass through the ring are too small to pack and are left to grow to larger size. Experienced packers will select pears of the proper size by the eye or by measuring with their fingers.

The styles of picking receptacles for pears vary in different parts of the state, from the many forms of pails or baskets to various makes of picking bags. Any type of receptacle that eliminates bruising is satisfactory. One advantage claimed for the pail is that careless pickers may be readily detected, by the sound of pears when dropped into it. Picking bags are suspended from the shoulders and allow the use of both hands for picking. This later receptacle is gaining in popularity among the growers and will perhaps displace all other picking receptacles.

PLUMS—This class of fruit always improves in flavor by ripening on the tree. It is therefore best to allow the fruits to

hang on the tree as long as the distance of shipping will permit. The proper time of picking plums varies with the variety and depends upon their firmness of flesh, thickness of skin and other factors which determine the keeping quality. Firm, rather dry varieties may be left on the tree longer than the more tender-skinned, juicy sorts. In general, plums are picked in a hard-ripe condition when they are of proper size for the variety.

In picking plums, the bloom of such varieties as Grand Duke, Diamond, Tragedy, Giant and President, should be disturbed as little as possible, for this waxy material adds to the keeping quality as well as to the appearance.

Packing

The containers for the various packed

treated in numerous publications. The main points that must be remembered are: First, careful sorting and sizing; second, a solid firm pack with proper bulge. The fruit should be wrapped and packed in an orderly way, the alignment straight and the spaces uniform.

The ends of the pack should be low and the center high to make sufficient bulge. It requires only practice to effect these details.

APRICOTS AND PLUMS—The law defines that packed apricots and plums shall be uniform in size, quality and maturity. No pack shall contain fruits which vary more than one-quarter inch in cross-section; and no layer below the top shall contain greater numerical count than the top layer.



Picking cherries in a California orchard. Note the cherry-picking cup carried by the man on the ladder.

fruits are specified by the California Fruit and Vegetable Standardization Act.

APPLES—The first requirement of packing is careful grading which includes sorting and sizing. With apples, grading is on the basis of size, color, shape and freedom from blemishes. The California Standard Apple Act specifies that all apples sold in closed containers shall consist of one of three grades, viz: California Fancy, "B" grade and "C" grade, which are minutely defined.

The actual sorting must be done by hand, either by the packer or by the worker before the apples reach the packer. Sizing is done by hand or by machinery, the latter method being the common one in the large apple districts. Apple sizing machines determine the various sizes by measuring the diameter or the weight; weight however, is considered the most accurate variable to measure.

It would require too great a space to give all the details of packing a box of apples. This subject has been thoroughly

Long strips of tissue paper are used in packing apricots and plums. The paper is passed between the layers of fruit in each basket of the crate and finally folded over the top. Great care must be used to fit the fruit snugly and evenly in the baskets, and to make the "face" have the appearance of being packed as one basket. Extra effort should be exercised in the packing of plums so as not to rub off the bloom.

CHERRIES—In packing cherries, one must be careful to select for uniformity of color, size and maturity. Fruit that is over-ripe, cracked, bruised, stemless or otherwise blemished, is culled out.

The eight-pound box is the common form of container for packed cherries. This is packed by facing, that is, packing the top layer first and then filling without regard to definite arrangement. When opened, a neat, attractive top is displayed.

FIGS—Figs must be so packed that there

(Continued on page 22)

Grapes in the Sound Country

By W. O. ECKERT

Detroit, Washington

THE SUBJECT of grape culture is one about which very little is known on this side of the mountains, and one who has the courage to assert that the successful culture of grapes from a commercial standpoint is possible in the Puget Sound country is subjecting himself to ridicule. But such is the case, and each year adds more and more to its strength, until today it stands as one of the strongest, most important, most successful and least known of any of the many valuable industries of this section.

It has always been believed by the majority of our people that our climatic conditions were such as to render it impossible successfully to mature grapes in the Sound country, but as season after season for the past 35 years comes to a successful close many people are becoming interested in this pleasant branch of horticulture, both from a home garden and commercial standpoint. The greater portion of the upper Sound country is admirably adapted to the growing of as fine a quality of grapes as is to be found anywhere in the west.

Around Detroit, which is the commercial center of the Puget Sound grape belt at the present time, almost every grower has been increasing his or her acreage for several seasons. An additional two acres was added to our own vineyard last winter.

The growing of grapes is one of the most pleasant and attractive occupations to be found, and less effort is required to care for five acres of grapes than one of apples or any other tree fruit. Once the man who has planted a few vines for his own use, sees them ripen successfully, eats them and enjoys them, he at once becomes an enthusiast and goes into it on a larger scale. The work is not hard in any of its branches. It is always clean and is attractive to women, who make very fine help.

Not all parts of the Sound are climatically adapted to the successful raising of grapes for commercial purposes, but for the home grower who desires half a dozen plants for his immediate family use, nearly any section will produce them and should.

Anticipating the question, if a few will ripen, why not many? I will say that a few plants may be grown in greatly favored and sheltered spots, such as against the sunny sides of fences, houses and outbuildings, where they will ripen perfectly, while if set out in the open field, it might prove too cold for them.

The planting of any new vineyard should not be done haphazardly nor extensively, unless the planter be experienced both from a horticultural and climatic standpoint. Better be sure of climatic conditions first—there will be less ground for remorse later.

In selecting a place for grapes, be sure that late spring and early fall frosts do not occur as a regular thing, for such a condition will not do for grapes. They will grow, but the late spring frosts injures the first buds and these are the fruit producers.

ISLAND BELLE BEST—Having selected the site for the new vineyard, it is safe to say that there is only one grape that can be ripened sweet and satisfactory for marketing, and that is the Island Belle. This grape is larger than Concord, has larger berries and bunches, is sweet, tough-skinned, does not crack easily, will not shell off, endures a tremendous amount of hard rains and frosts and once fully ripe, will stand a very severe freeze and still come through in perfect shape. One of its best points is that it will hang on the vines a full month after it is ripe and does not have to be rushed in for fear of its cracking. This is a strong point in its favor for such a climate as ours. This is the only grape we can recommend for the Sound country for commercial purposes, as it has proven itself a winner season after season and ripens under the most adverse conditions, ships perfectly to any distance and stands up for weeks after being picked, but it must be ripe, not just black, when picked. The quality compares favorably with the Concord.

For the home garden, there are several varieties which ripen perfectly and are sweet and delicious. The Eclipse is a medium-sized black grape, ripens very early, raises fair sized, compact bunches and is prolific. It is a little tender like the Concord and is inclined to crack if too much warm rain occurs. The Green Mountain is a small green grape, grows large, long, bunches, is very early, often ripening first week of September, and it is doubtful if a sweeter grape is grown, but, like Eclipse, is too small for the trade.

For a red variety, we have the Vergennes, which has no superior for quality and endurance. It ripens early and hangs on the vines uninjured when other grapes freeze solid, never cracks, shells off or moulds, in fact, is perfection itself except for its color. It is about the size of Yakima Concorde, but, being red, is

not wanted on our markets where the call is entirely for a black grape and all black grapes of the American variety are classed as Concorde.

Conditions are different here than in the east, where quality comes first and is willingly paid for. Here the demand is for a large white potato, red apple and black grape, and, so the size is there, the quality does not seem to matter. It is folly to try to raise and ripen the Concord. It is too late for our climate and only gets ripe enough for jelly, so the planter is only inviting trouble and wasted years of effort to try it.

PLANTING THE VINEYARD—Having settled on a location and variety, the preparation of the soil and planting come next. Lay out the field so as to plant rows north and south if possible, or head them into the prevailing wind, so it can blow through the rows instead of across them. Less damage to the shoots will result in the early summer when they are tender, and later when the fruit is ripening, it needs good ventilating.

If a side hill is used, plant across it. We stake out the field first, taking much pains to line them straight in the direction they are to be cultivated. Drive a strong stake, place them eight feet apart in the row and the rows ten feet apart. On level ground it is easy to line them both ways, but on a rolling hillside it is a very difficult matter.

When stakes are set, we dig a hole on one side and in the row, out of line of cultivating. This hole we dig on a 45 degree angle, angling away from the stake and dig it three cornered and about 16 inches deep and perhaps a little longer, with the wide end of the hole farthest from the stake. Lay the vine down flat on this slanting hole. Spreading the roots out in a fan shape at the bottom and wide end of the hole, bringing the top up to the stake, placing as much of it under the ground as possible, as the tops will nearly always form a strong bunch of new roots on its first buds same as a cutting, and these roots are near the surface in the warmer better ground. Cover the roots and pack dirt solidly with feet, filling balance of hole loosely.

This is a simple, easy way to plant and better than digging a deep straight hole, as the roots are apt to rot off when planted too deep where the ground is always cold. Trim off all but one top and cut this back to two buds. Tie the new wood to the stake as it grows during the summer. A little stable manure is

good and starts the young plant off right. It should be spread on the top of the ground and worked in—not put in the bottom of the hole.

Too much cannot be said about getting the land in good shape, and there is very little danger of overdoing it, as our soils, especially those adapted to grapes, are very deficient in humus, as most of the hill lands raise nothing but evergreen, and do not replace any nitrogen in the soil. We believe in seeding a heavy crop of vetch, with perhaps a little rye added, and, for the first season, let it grow up, mature and fall down, caring for the plants by hoeing a small circle around them. Plow under this first crop late in the summer and seed again, then in the spring, plow a few furrows on either side of the rows and cultivate with a shovel cultivator and hoe, allowing the vetch to grow up in the middle as on the previous season. Plow this under again in the fall and re-seed, but in the spring this must be plowed under green and the entire space cultivated clean, for by this time the plants are large enough to need the whole space. The furnishing of nitrogen from legumes from this time on must be studied by watching the plants, as too much growth is not a good thing, but, generally speaking, there is very little danger of furnishing too much nitrogen in our upland soils.

The third season we set our posts and string one wire, and to this the new growth is trained. These posts are set every 32 feet or one to each four vines. Later on, when the growth demands, we set them for every two rows, or 16 feet, and use three wires, favoring a No. 12 gauge galvanized wire.

CULTIVATION—Clean and thorough cultivating should be done through the growing season. In the spring we use a 10-inch Oliver plow, plowing two sections at a time. Starting at the row, we plow along one side and toward the vine, coming back on the next row, always turning around the posts. This plows onto one row and away from two, leaving no back or dead furrows in the centers, and tends to keep the ground even. Each year we reverse this plowing. This prevents piling up ridges under the wires.

We tried out a disc harrow, but with poor success, for where the ground is stony, the disc jumps too much, and on a side hill, the high side does not cut, and this leaves too many spots uncut. Unless a disc can be run both ways it is no good on a side hill, and, when wires are strung, this is not possible. We cultivate all summer with what is called a Cyclone or Tornado weeder. In our opinion there is no better machine on the market for clean smooth work. It leaves no ridges, also no ferns. The ground is kept clean

under the wires by the frequent use of the hoe.

The amount of cultivating depends entirely on the season, not on the amount of weeds. Many people get the idea that if the ground is clean, there is no need to cultivate. Nothing could be farther from the truth. The top soil or mulch, as it is called, must be kept stirred frequently, and even though there appears to be no crust on the surface, it is forming all the time underneath the mulch and, if allowed to stand too long, shuts off the available moisture from below. The crust must be broken after each rain.

In established vineyards it becomes very difficult to cultivate late in the season as the growth is so long it lays on the ground and gets caught in the harness and tears the vines badly, so we cut off the long ends in August to enable us to continue our cultivating to the end of the month, which is as late as the work should be done. Too much summer pruning should not be done, and it is a mistake to think the wood must be cut away to allow the sun to shine on the fruit itself, as this tends to rob it of its natural sweetness and unduly exposes it to rains and frost.

SOIL FERTILITY—Most of our vineyards will get along nicely for the first eight or ten years with little or no fertilizing of any kind and produce maximum crops of finest quality, but from that time on bear watching. If the vines do not produce a vigorous and healthy growth, the fruit will not be so good or plentiful, nor will it mature so sweet and sound. Lack of growth denotes absence of nitrogen and late ripening the lack of potash and phosphates. The nitrogen is supplied to a very large extent by seeding to vetch and plowing this under. This seeding should be done just ahead of the last summer cultivating and worked in, where it will sprout as soon as the first rains come. Allow it to grow as late in the spring as it is safe to withhold plowing and still not lose the moisture. In vineyards where the lack of nitrogen is seriously manifested, it is necessary to apply the commercial nitrate of soda also. This, with potash and phosphate, constitutes the only fertilizers needed and should be scattered broadcast in the early spring.

The amount to be used will vary with each vineyard, and no set rule as to the quantity needed can be given. Each grower must study his own peculiar case. His county agent and the professors at the Puyallup experiment station are always very willing and glad to be of help and their assistance is invaluable. I do not use a fish fertilizer on grapes as it seems to cause rot and mildew. Barnyard manure should be used skillfully, for anything which produces and stimulates too vigorous wood growth is not desirable on matured vines, as the sap

rushes through too fast and has a tendency to drown the flowers, causing the bunches to become straggly and makes them later ripening.

HARVESTING—Harvesting is a serious problem in our climate and the one point on which most of the growers fall down. As soon as the grapes turn black, there is a mad rush to get them off the vines and under the roof before a frost comes, and more damage results from this practice than could be done by a dozen frosts. Frosts do not in any way injure ripe grapes. Nothing short of freezing them to solid ice and then have them thaw out suddenly in the sun will injure them, though it cuts off the foliage and exposes them to succeeding frosts and rains. In the 30 years of our experience we have had but two such freezes as this, and then only the lower parts of our vineyard were affected, but it was Concords then and their thin skins will not stand it. It needs to be said that the common run of grapes will not stand much exposure to hard frosts, and it is here that the thick, tough skin of the Island Belle comes in very handy. With this grape and the above record, it would seem that the grape grower has little to fear from a climatic standpoint.

Fruit should be absolutely dry when packed in baskets for market, and it is far better to let them hang on the vines until dry, even though picking has to be stopped for a week or longer. The season of 1921 was a most disastrous one to our growers for this very reason. The season was late and cold. The grapes appeared to ripen very slowly, so slowly that many of the growers about gave them up; then came a week of warm rains in the middle of October, and in this short space of time the entire crop ripened at once and still it rained. The nights were warm and for the first time in history of this grape, some began to crack and show a trace of mold. In desperation, the growers began to pick and pack them in a more or less wet state in spite of our urgent advice. The results were that they arrived on the Seattle market 12,000 baskets strong in one week and in every instance showed signs of mold and had to be sacrificed at a big loss to the grower, not only on those consignments, but on the succeeding ones, as the buyers were loath to be caught a second time. If the growers had left them alone till it did dry off, good money would have been made and, what is infinitely more valuable, the reputation of these grapes would not have been impaired through no fault of their own.

We closed up our own packing house absolutely for ten days in the packing department, laid back and cursed the

(Continued on page 24)

Wider Dependence on Evaporation

By NORMAN LOMBARD

President Progressive Evaporator Co., Inc., San Francisco, California

WITH the progress of man's inventiveness old time methods of doing things have been obliged to give way to newer and more progressive methods.

As the horse has given way to the automobile as a means of carrying man rapidly over the earth, and as the sailing vessel has given way to the steamship as a means of carrying him over the water, so the mechanical drying of fruits and vegetables is gradually taking the place of the old time methods of sun-drying and preserving in cans.

Up until a few years ago mechanical dryers were looked upon solely as elements of insurance against early rains. As such, they were considered of such value that there are hundreds of evaporators of various kinds and descriptions in this state. Thus, in one valley alone the writer counted on a recent trip 32 different varieties or makes of evaporators, dehydrators or other forms of mechanical dryers.

With the increase in the commercial demand for mechanical drying inventive genius was brought to bear with the result that the value of mechanical drying, from the point of view of insurance against early rains, has been largely lost sight of and in the consideration of the purchase of such machines this argument is now hardly ever raised, being taken as a demonstrated thing no longer needing to be mentioned.

The arguments heard today relate to the cost of the operation as compared

"The shortage of cars, due to the railway conditions which existed during this year's fruit harvest season, induced the evaporation of hundreds of tons of fruits and vegetables which otherwise would have been totally lost."

There is one angle of the importance of preparedness on the part of the grower, as set forth by Mr. Lombard. Other angles are emphasized and it is well for those who do not have evaporating facilities at their command to study the growing use and importance of this method of preparing and distributing fruits

with sun-drying and with canning, and the superior quality, superior nutritive value, superior keeping qualities of the product.

Admittedly, no product is so difficult to handle in the mechanical dryer as the prune. This was the most satisfactory prune drying season that the great Santa Clara valley, which produces over half the prunes raised throughout the world, have ever known, and yet dozens of modern evaporators were operated in Santa Clara valley throughout this prune drying season. Their operators report that it is cheaper to dry their prunes in the machine than in the sun; they secure a product which does not require to be picked over by hand, a product which

keeps better and which commands a premium when sold through the independent agencies.

The shortage of railroad cars, due to the railway conditions which existed during this year's fruit harvest season, induced the evaporation of hundreds of tons of fruits and vegetables which otherwise would have been totally lost. Products which have been successfully and economically evaporated are pears, apricots, apples, tomatoes, peas, beans, pumpkins, and many others.

One of these plants exhibited at the recent exposition at Mountain View, California, 18 different varieties of fruits and vegetables which had been dried in the evaporator.

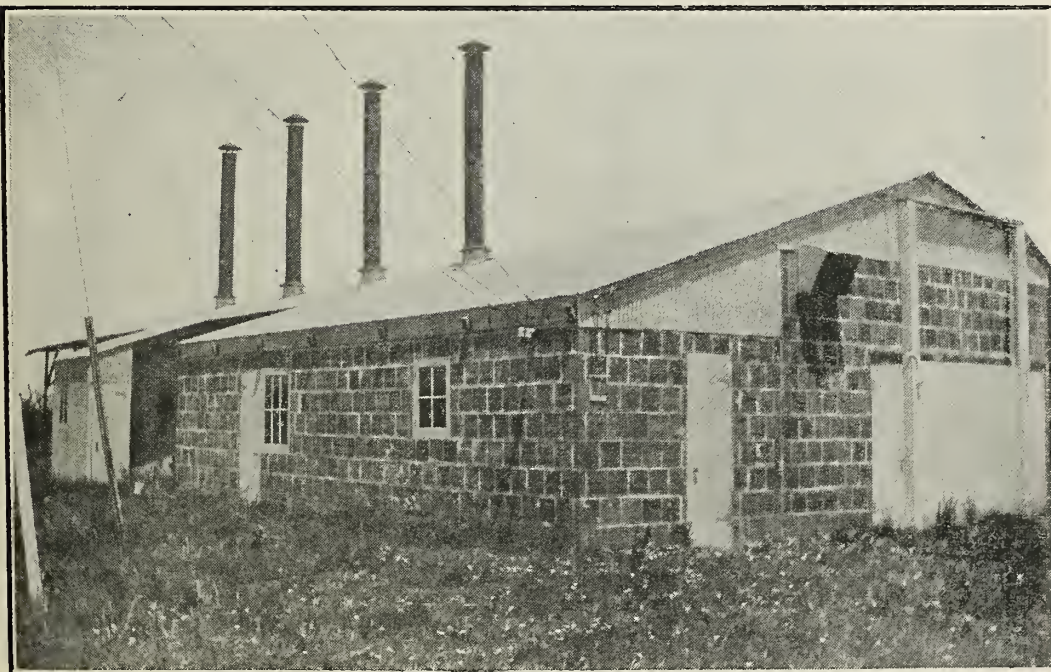
AS AGAINST canning, the evaporated product is much less expensive to produce. The cost of the tin can is done away with, the much less expensive cardboard carton being substituted. A pound of dehydrated product has the same food value as eight pounds of the canned product, and takes up much less room in warehouses and railway cars, with the result that there is great saving all along the line.

One progressive growers' organization, the Canning Peach Growers' association of California, realizing that the production of canning peaches now in sight will not be consumed by the American public in canned form at profitable prices to growers, canners and the trade, is preparing arbitrarily to limit the amount of peaches which will be delivered to canneries, requiring that the balance of the crop be evaporated and marketed in the dried state, in which form it is felt that it will command a wide market at profitable prices to growers.

Many forward-looking canneries have seen the handwriting on the wall and have installed evaporators, established brands and are preparing to take advantage of the commercial demand for evaporated fruit and vegetables which is so rapidly developing.

Food experts have long been familiar with the greater cleanliness and keeping qualities of the mechanically dried product. Thus, it is reported that vegetables dried during the Boer war were taken out of storage and used during the world war, 16 years later.

A gentlemen, high in the executive staff of one of our largest fruit packing



This compact evaporating plant at Sunnyvale, California, handled 30 tons of prunes per day during the drying season.

(Continued on page 25)

Nature and Action of Oil Sprays

By B. G. PRATT

President B. G. Pratt Company, New York

THE effect of miscible oil sprays was the subject of articles in both the April and May issues of BETTER FRUIT, and the editor said: "The practical value of the oil sprays has been widely established. * * * It is hardly to be denied that certain elements of danger attend the application of these sprays. The sooner the orchardist learns the what and when of those dangers, the better it will be both for the makers and users."

As I have been for almost 20 years both a maker and user of oil sprays and have, as a manufacturer, suffered more from a misunderstanding of the nature and action of these sprays than others, I have naturally given the subject more thought, I will endeavor to give BETTER FRUIT readers the benefit of my investigations and experience as fully as space will permit, avoiding as much as possible technical phrases.

What are miscible oil sprays? Miscible oil sprays when properly made are not emulsions, but a combination of oils so treated that when added to water they mix with the water and stay mixed without agitation; a greater or less amount being a pure soluble oil, the balance technically forming an emulsion. In an emulsion, the oil globule is broken up mechanically and will eventually settle out to pure oil. In a miscible oil, the globule is broken up chemically very much finer than it is possible to do in any emulsion, and will not separate out after being mixed with water except by chemical action or freezing.

An oil spray can be made carrying 50 per cent of petroleum oil, instead of the usual 70 to 80 per cent petroleum, which will be a soluble oil rather than a miscible oil. It will dissolve in water like syrup or liquid soap. If you add 20 to 35 per cent more petroleum oil, it will make a white, milky solution, 65 to 80 per cent of which will be soluble oil and 20 to 35 per cent an emulsion.

TWO KINDS OF MISCIBLE OILS—There are two classes of miscible oils on the market. When properly made, both are about equal in insecticidal value, but differences in the physiological action of the tree have been noted and can be expected because of the entirely different materials used and the manner of combining these materials.

One class of miscible oils is very simple to make. Take one part of potash soap made from any cheap saponifiable oil, either fish, animal or vegetable. Liquify this with equal parts of carbolic acid,

phenol or cresylic acid. Add to this 17 parts of petroleum oil and one part of water, more or less, to balance and make it water miscible.

The other class is made by treating a vegetable oil with sulfuric acid until it is perfectly soluble in water. Then neutralize this with an alkali, such as ammonia. This is combined with only three or four parts of petroleum oil and about one-half part of water and alkali to balance and render miscible in water.

So you see one class of miscible oils has from 18 to 20 per cent vegetable oils; the other class has not over five per cent, or may have none. The more vegetable oils they contain, the more expensive to make, but the vegetable oils seem to show beneficial properties that make them worth the difference.

There are also differences in the kind and gravity of petroleum oils used, whether asphaltum or paraffine base, heavy or light oils, but the above will answer our purpose for the present.

NOW that I have established clearly what miscible oils are, I wish to digress a moment to recall the early work with pure oil and oil emulsions, because that work reflected very materially on miscible oils.

When San Jose scale first made its appearance in the eastern states, lime, sulfur and salt were tried and pronounced valueless by the Department of Agriculture, and for ten years pure oil, oil emulsions

and soap were used in every conceivable way in a desperate effort to save the fruit industry which at that time seemed doomed. Although effective, pure oil was almost always disastrous to the trees. Oil emulsions although less dangerous, often separated, and part of the tree would be sprayed with pure oil with injury to the tree. So when the first miscible oil was offered in 1904, it was looked upon with the same suspicion as oil emulsions. Then, too, some of the miscible oils offered at that time were little better than emulsions. These early impressions are hard to overcome, and as a result, it is difficult for some people to believe that an oil sprayed tree may die from other causes.

You will notice that I lay stress on the words "properly made." If the material is not properly made and does not mix, it is not a miscible oil.

If a miscible oil is properly made, it will mix perfectly in water in any proportion greater than itself, and when sprayed on a tree, a certain proportion penetrates the corky tissues of the bark into the sap cells and is further diluted in the sap, and in a short time is completely diffused or assimilated by the sap. If, however, the oil spray is not perfectly miscible or is an emulsion composed of large globules of oil, it will penetrate into the sap cells, but not being soluble or miscible in the cell sap, it will interfere with the intercellular action of the sap and cause the lenticels to enlarge and possibly burst the cells—the injury being in proportion to the amount and coarseness of the oil globule.

EFFECT OF FREEZING—You will recall that I previously stated that a mis-



Eleven-year-old Elberta peach orchard in Georgia which has been sprayed annually with miscible oil spray.

cible oil should not separate except by chemical action or freezing. A miscible oil is not affected by freezing before being mixed with water, but after being mixed freezing will throw the oil globule out and it will not go back into solution on thawing. So when a properly made miscible oil is sprayed on a tree when the temperature is near the freezing point

and very cold weather sets in immediately after—cold enough to freeze the sap before the oil solution has been thoroughly diffused or assimilated—the oil globule will be separated out and will have the same effect as though you had sprayed with pure oil. For this reason I have always cautioned against the use of an oil spray when the temperature is

below 40 degrees Fahrenheit. This precaution will obviate danger from temperature falling so far below freezing as to do injury before the spray has had time to be diffused.

The instance of oil injury in Idaho reported by Professor Vincent in the May issue, was unfortunate in many ways, but

(Continued on page 19)

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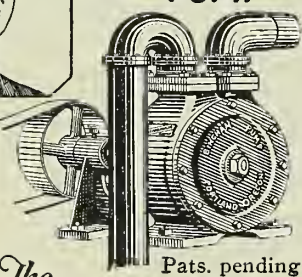
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Danger From Fruit Worm

By WILLIAM DE MACEDO

THE fruit worm is fast becoming a serious pest to the pear growers of Oregon. It is especially serious in Rogue River valley, Willamette valley and Hood River. Comparatively new to Oregon, this insect has been introduced from the East, where it has been causing considerable damage, notably in eastern Canada.

Unless immediate measures are taken by growers much damage will result to the pear industry of Oregon, in the opinion of A. L. Lovett, entomologist of the Oregon Agricultural College Experiment station. The injury is not confined to pears, but apples are as frequently attacked.

Growers seldom realize the extent of the injury caused by fruit worms. The injury most commonly observed and the one which most farmers consider as the true injury is the small russeted scar on the mature fruit, appearing at picking time. The real serious type of injury is that done to the very small fruits. These drop previous to thinning and are unnoticed.

Limited observations show that from 12 to 40 per cent of the fruit drops, and from 6 to 20 per cent of the mature fruit shows the typical scars. It is likely that the same amount of fruit is injured on both apple and pear, but due to the lighter set of fruit on the pear the percentage of injury is higher here and the effects are more apparent.

The amount of damage done by individual insects is increased by the peculiar and destructive feeding habits of this insect. Instead of taking his meal from one fruit the fruit worm nibbles a hole on perhaps every member of a cluster. Fruits about the size of marbles are the favorite meal for the worms. At this stage they are about a third grown and are naked, green caterpillars.

The winter is passed as adult moths which remain concealed under such protected places as fence rows close to orchards or old stumps. The moths are active in spring about the time of the delayed dormant spray. Eggs are deposited singly at the base of spurs. When the blossoms are in the "early pink" the larvae hatch. They feed for about two weeks on leaves, attacking blossoms to some extent.

In feeding, a large surface area of leaf is covered in proportion to the amount of food consumed. When the fruit sets and for three to four weeks thereafter, the worms attack the developing fruits. Usually a single meal is obtained from each fruit, so one worm may injure a great number of fruits.

Maturity is reached in June and early July, when the worms drop to the ground

and pupate in the soil at a depth of four inches. The adults emerge in October and so pass the winter.

In control work, for successful results it is essential to bear in mind the fact that during the early part of their existence the worms tend to feed over a considerable surface area of foliage. This makes spraying much more effective than if practiced at the later stages of injury which takes place on the young fruit clusters.

Lead arsenate at the rate of 2-100 in combination with the blossom-pink application for scab is strongly recommended by the Oregon Experiment station. Later applications are almost useless. Too much stress cannot be laid on the best time to spray, especially for pear infestations, and this is when the trees are in the "pink."

Peaches Via Canal

ADVICES from the Royal Mail Steam Packet company tell of the successful shipment of peaches and pears to England by water. The experimental shipment was sent across to London on the *Eemdyk*, one of the large refrigerator vessels of the joint service of the Royal Mail and Holland-America line.

There were 1200 boxes of fresh peaches and 2500 boxes of Bartlett pears in the shipment. A cablegram from the company which handled the peaches reported that they were received in London in splendid condition and found a ready sale at excellent prices.

The results of these trial shipments are encouraging to growers and shippers of soft fruits on the Pacific coast. There may be extensive shipments of this sort next season.

Fruit Shows

Advices from Seattle are to the effect that 14 of the more prominent fruit districts of the Northwest have arranged for exhibits at the Pacific Northwest Fruit exposition, to open there November 11 and continue over November 19. Governor Hart of Washington will participate in activities of the exposition and Governor Olcott of Oregon and officials of British Columbia have been invited. A promising array of fruit exhibits is said to be lined up also for the Land Products show, which will be held in Portland, November 6 to 11, in connection with the Pacific International Livestock exposition.

Shipping by Rail

By H. A. SMITH

Manager Fruit and Produce Exchange of Great Britain, Ltd.

IN THE minds of growers and shippers there appears to be a controversy as to the merits of direct shipments to Great Britain against shipment over land via New York or other eastern port. There are points to be considered in export which it is necessary to divide into several headings, viz: cost of transportation, methods of handling, time in transit, condition on arrival, and distribution.

In order to get straight it is necessary to take each item and digest it. Too much stress has in the past been put on only one item, totally disregarding the others which after all are as important as the item selected.

The initial attraction to a shipper is cost of transportation. From point of origin it costs from 15 to 25 cents per box to get the fruit aboard steamer at Portland, Seattle or San Francisco, according to which section the fruit is grown in. The ocean freight direct via Panama canal is 90 cents per box under refrigeration, making a total cost of transportation \$1.05 to \$1.15 per box. Via New York the inland freight, under carriers' protective services, is 79½ cents per box and the ocean freight is 35 cents, making a total of \$1.14½. One large firm promises a rate of 25 cents.

METHODS OF HANDLING—Both ways the fruit receives the same handling. First, it is loaded into cars and shipped to seaboard. Then it is unloaded and loaded onto steamer and is discharged at destination.

Time in transit is a very important matter as finances are tied up and naturally the shipper wants to get his returns as soon as possible, unless an advance has been made. Via the Panama canal the fruit is under refrigeration, and naturally will be able to stand a delay better than fruit shipped in ventilated stowage via New York. It takes from six to seven weeks to get fruit in the British markets via the canal, whereas via New York it averages less than four. Shipments via New York can be stored in transit, diverted or sold if the shipper considers that it would be to his advantage to do so.

Condition on arrival is possibly the most important point in the export business. If the fruit arrives good, the receivers are satisfied even though the market should be off. Direct steamers take the fruit under refrigeration and last year the outturn was very good. Shipments via New York are inspected in New York before being ordered to



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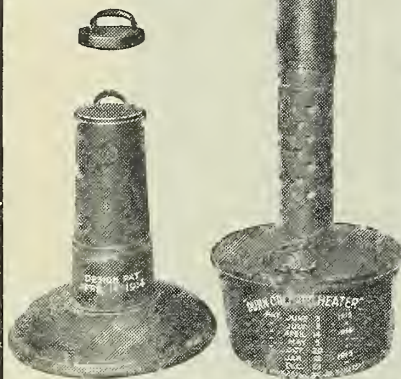
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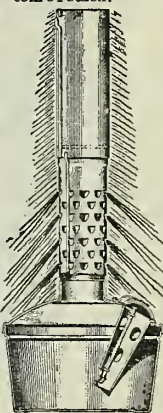
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steamer and if the fruit is frozen or otherwise damaged it is sold in New York and claim filed against the railroad. The majority of steamers sailing from New York are fitted with refrigerator chambers, but it has been found that owing to the shortness of the voyage, namely six to ten days, it is only necessary to ship certain varieties under refrigeration. It is granted that late in the season it is desirable to ship fruit under refrigeration and this is done when necessary.

Distribution is the mainstay of successful marketing. Regular supplies are the life of the trade. In the cases of direct steamers, these invariably have large cargoes and make three calls in Britain. A large cargo depresses a well supplied market even before the steamer arrives. Buyers in Great Britain are in close touch with all markets, all of which can be reached, at most, in an overnight train journey. They prefer to buy at the port where they have their warehouses and if buying in another market must take into consideration the inland freight. It is therefore only natural to assume that a Liverpool buyer will pay a better price in Liverpool than he would in London.

When there is a heavy crop to move it is absolutely necessary to have the point of distribution as near the proposed markets as possible. From New York there are approximately a dozen steamers weekly to different British ports (namely, London, Liverpool, Glasgow, Manchester, Southampton, and Hull), so the distribution can be made without having inland freight in Britain to consider. Last year a direct steamer arrived in London and had to discharge 30,000 boxes of apples before the London cargo could be discharged. This fruit was reloaded into the steamer and landed at the destined ports of Liverpool and Glasgow.

In summing up it will be seen that there is a balance of points in favor of shipment via eastern seaboard. If the only source of supply were via the canal,

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the method would be ideal, but with the heavy competition via New York, the service and class steamers, and general advantages, it is difficult to believe that the present direct facilities will prove advantageous to shippers. Shortage of

refrigerator cars often causes a shipper to load his fruit in box cars and ship it to Portland, Seattle or San Francisco, and under these circumstances he is forced to ship direct not from choice, but by circumstances over which he has no control.

I am and have been a reader of BETTER FRUIT for a number of years and have found much useful information in every number, so I look forward for the next to come. W. E. Hill, Victoria, B. C.

A Practical Reminder for Everyday Farmers

You know your farm like a book. Whether it covers 80 acres or 320 acres, you are perfectly familiar with every corner of every field. You know the lay and contents of the buildings that make up your homestead. With your eyes shut you can tally the livestock and all the items of farm equipment. To be well posted on these things is a matter of pride with you and a matter of careful management besides.

This policy could well be carried a step further. Profitable, economical farming is so largely a matter of modern, improved machines that every good farmer should keep posted also on the equipment on the market so that when occasion arises he may invest to the very best advantage by the purchase of new machines.

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VOL. XVII, NO. 5

Car Shortage Remedy

A few days ago it was announced from Washington that the car service division of the American Railway association had promulgated a "sweeping and drastic" order that cars belonging to western roads be returned to these roads forthwith. This action was in response to a deluge of protests and complaints from western shippers and railroads charging that negligence of eastern roads in returning cars was causing the shortage in the Pacific coast region.

It was said that in response to the order whole trainloads of empty box-cars and refrigerators had been started westward to meet the needs of the lumber and fruit industries. Our readers are likely to be skeptical about this information. They will believe it when they see flocks of "empties" shunted on the sidings that await them.

Anent this annual car shortage the Hood River News has made

such pertinent comment, we quote a bit from what it said:

"The railroads assert that receivers of refrigerator and other cars in the east do not unload them on arrival, but it does not require a Solomon to point to the remedy, which is entirely in the hands of the railroad managements. Make it unprofitable for a receiver to keep his consignment in a car beyond a reasonable time for unloading; make it impossible for receivers to use the refrigerator cars as a medium for carrying invisible supplies, with which to manipulate the markets. It is well known that the speculators have, in the rolling stock and especially the refrigerator cars, a most convenient adjunct, and they find it far more profitable to pay the small charges for holding supplies in cars than to go to the costly trouble of unloading and holding in storage, where its existence is quickly known."

If executives of the railway association really care to adopt preventive measures instead of acting with a big splurge each year when forced to do something, there is one efficient remedy they can make effective.

Price Fixing

Loganberry growers in a number of districts around Salem, Oregon, have indorsed a movement to set a minimum price of 6 cents a pound on their 1923 crop. The average price received this year is given as 4 cents a pound. This, however, was better than the 1921 price, which was about a cent less.

It is doubtless true that, in the face of costs encountered this season, the growers failed to realize a reasonable profit. As yet it is obviously impossible to say whether or not there would be an acceptable profit were the same price to obtain next season. In times past 4 cents a pound would have meant satisfactory profits for the growers.

We take it for granted the

growers are sincere in their movement and not merely "bluffing." Two questions relating to the wisdom of their move then arise. One is as to the soundness and fairness of the six-cent minimum; the other as to the logic of fixing an arbitrary price a year in advance.

In their price-fixing the loganberry growers set their minimum 50 per cent ahead of this season's price. Stated this way their action looks a bit ominous. If it is an equitable figure—one that will not cause the evaporating and canning interests to curtail their output—the movement may work out all right. If, on the other hand, these interests find they cannot pay so much the growers might easily find themselves in a worse plight than ever.

In this connection it is well to bear in mind that even a just price may not always be maintained by agreement—not when crops are heavy and consumers are not feeling any too prosperous. The Yakima Valley peach growers found this out the present season. They set the price of peaches at 60 cents a crate—certainly a very reasonable quotation—yet the fixing had hardly been completed when some interests cut to 50 cents. The result was a badly demoralized market at the height of the season.

As to the second question it need only be pointed out that fixing a price nearly a year in advance is a questionable procedure. It must presuppose a lot of foreknowledge as to crop and business conditions next July and August. To most persons a concerted move to establish a price for the loganberry crop would seem to have more weight behind it and better chance of success if put over on the basis of conditions existing two months before picking time. There is the further probability that a movement started so soon will lose its impetus in the months that intervene before another crop is ripe.

Value of Cover Crops

CLOVER, vetch, and other legumes, as green manure crops, serve the triple purpose of adding humus to the soil, accumulating nitrogen, and preventing soil erosion. With some tender berry and fruit crops they also serve to protect the roots from severe winter weather. Outside of the nitrogen-forming plants, rye is largely used as a cover crop sown in the fall and plowed under in the spring to add organic matter to the soil. The cover-crop problem varies largely with locality, but for over-winter purposes there is one rule which is universal, and that is to get the crop in the ground in time to secure good growth before freezing weather.

The use of clover or some other legume to enrich the soil is generally considered a cardinal agricultural practice in the humid sections of the United States. It antedates by three-fourths of a century the monumental discovery that legumes store up nitrogen from the air. The belief that clover was a valuable improver rested first on experience, and later experience was substantiated by the discovery of the relation between the legumes and the nodule bacteria.

Other legumes, as the cowpea, the Japan clover and bur clover in the south, and crimson clover on the Atlantic coast, have come into use in the territory not well adapted to red clover. The various vetches are held in widespread favor, different varieties being employed according to climate and crop conditions.

The time of planting and the best crop to use is a matter which local conditions must dictate. Along the north Atlantic coast it is considered best to get these crops in from the first to the middle of August, while in the extreme south the planting may be deferred to early October. In the extreme north hairy vetch is favored as a legume cover, or green manure crop, but rye is also largely planted. From middle Pennsylvania to the North Alabama line, crimson clover gives good results. In the extreme south bur clover, vetch, and crimson clover are used, as well as velvet beans and cowpeas.

With the orchardists of southern California, common vetch is sown in the fall and turned under as early as possible in the spring. Purple vetch is preferred, as it can be turned under one month earlier than other varieties, but until recently there has been extreme scarcity of seed, a condition which is being remedied through the efforts of the department in getting the seed grown in more northern sections of the coast.

SOUR clover is used to a large extent, as the seed is cheaper than that of the vetches. Farther north on the coast



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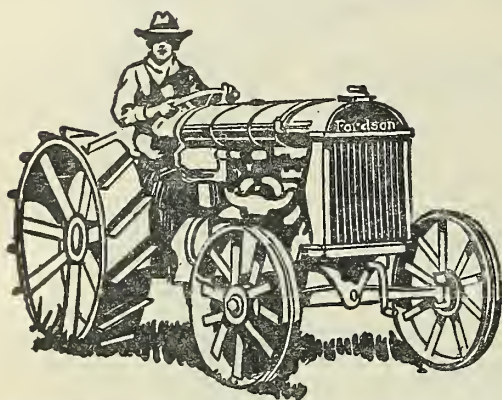
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common vetch gives good results, while east of the mountains in the northwest, hairy vetch is used because of its cold-resistant properties.

Methods with cover crops vary greatly. In the south they are customarily sowed between rows of cotton at the last picking. It is also common to sow the winter crop between corn rows before harvest. Wherever clean cultivation is practiced the soil is likely to be in shape for broadcasting the seed. If convenient, it can be harrowed in. In orchards a light harrowing or disking may be employed if the ground is free from sod. Care must, of course, be taken not to injure the roots. The crop is usually plowed under in the spring, but this is not always done with orchards. Data collected in all parts of the United States by the Department of Agriculture show a general benefit from this form of agriculture.

Cover crops are of especial value to small gardeners and truckers, who often find it both difficult and expensive to obtain stable manure. They add the humus which is so necessary to maintain a good physical condition of the soil. Wherever there is a vacant place in the garden a few seeds of rye, vetch, clover, etc., may be sown and raked in. If a suitable rotation of crops is followed all parts of the garden may be covered with a green manure crop once every two or three years.

Nature and Action of Oil Sprays

(Continued from page 11)

I hope some real good may result, showing more clearly what may and what may not be done with miscible oils, and why directions should be followed whether the reason is given or not. *In this instance the simplest directions were disregarded.* The only time during the day when the temperature reached as high as 40 degrees Fahrenheit was between the hours of 12 and 1 o'clock, when probably they were not spraying. That night the temperature fell below freezing and did not go above freezing for many weeks, reaching 26 degrees below zero during that time—most unusual temperatures. But the weather charts show that the spraying might have been done with perfect safety almost any day the week previous.

This is one of the very few cases that have been brought to my attention during the past 18 years, where injury was undoubtedly caused, even when directions were disregarded. Every disregard of directions does not necessarily lead to injury, but it is impossible to do injury without disregarding directions.

The injury reported in Winchester, Virginia, is probably the same one that

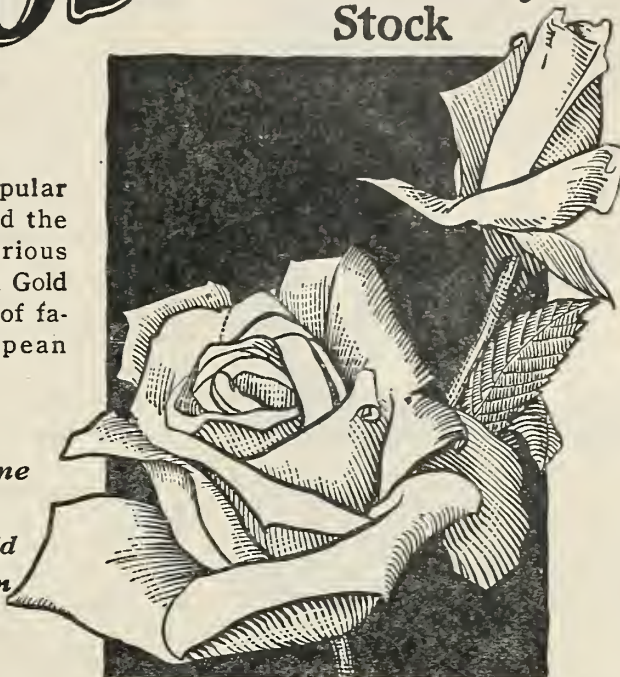
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I examined personally, and with all due deference to the eminent authority who made the statement, oil had nothing to do with the injury. It was root trouble. On our way back to Winchester, when I indicated the same conditions in a half-dozen orchards not sprayed with oil, I was almost thrown out of the buggy! (It was before the days of the Ford.)

In regard to the danger to peaches, I have 14,000 peach trees that are sprayed annually with Scalecide, an oil spray, preferably in the fall. I am sending three photographs taken in an Elberta orchard of 15,000 trees that are now 19 years of age and have never had anything, but Scalecide used on them while dormant. The first was taken when the trees were three years old; the second, when they were 11 years old; and the third, at 19 years of age.

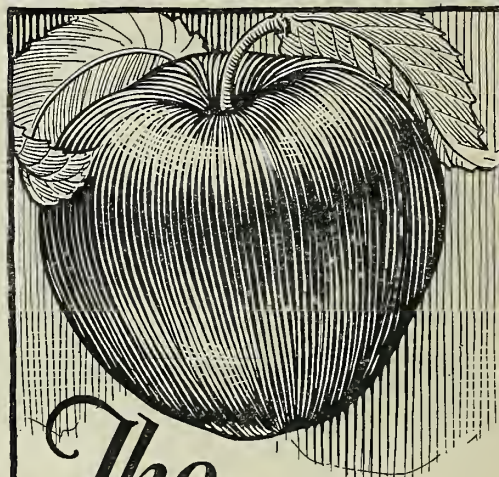
DORMANT SPRAYS ONLY—Miscible oils are, properly, dormant sprays only; but notwithstanding the fact that they should be applied only when the trees are dormant, observation in many countries for many years has demonstrated that instead of being injurious, they actually show an extraordinary stimulating effect upon tree growth, dependent upon the amount of vegetable oils they contain, increasing the size of the foliage and the retention of the foliage.

All miscible oils are more or less unstable if kept for a long time in wooden barrels. The oils are of different gravities and must be stirred or shaken together very thoroughly before using. They also must contain a definite amount of water. If they lose water by evaporation, it must be replaced carefully and stirred thoroughly into the material or it will not mix. Consequently, test your oil before using by stirring a teaspoonful in a half-glass of water. If it mixes perfectly, it is all right to use, no matter how old it is. If it does not mix readily and at once when stirred into water, no amount of agitation will make it mix, but after it is mixed, it stays mixed whether agitated or not.

Don't use an oil spray that does not mix, but notify the manufacturer at once; he will generally tell you how to make it mix.

See that your spray-tank is free from lime-sulfur and arsenate of lead; chemical action is sometimes strong enough to throw some of the oil out of solution or to make a lime soap that is insoluble.

Don't use a miscible oil when the temperature is colder than 40 degrees Fahrenheit, or when there is danger of freezing before it has had time thoroughly to dry on the tree. Then there is no danger in either fall or spring spraying.



The RAINIER APPLE

The U. S. Department of Agriculture in Bulletin No. 587 says:

THE keeping qualities of the RAINIER APPLE are unsurpassed by those of any other variety of the Pacific Northwest that has yet come to the attention of the U. S. Department of Agriculture. Its ability to retain its firmness, brightness, and quality with almost no decay or skin blemish, places it above even the Arkansas Black, Winesap, and Yellow Newtown. In 32 degrees Fahr. cold storage it keeps in prime condition into May or later, and instances are known where large numbers of boxes have been held in excellent condition into September of the following year."

The RAINIER fruit is of good size, attractive color, good shipper, and of unsurpassed keeping qualities. Flavor resembles Delicious—quality much better. A truly great dessert apple with a real future.

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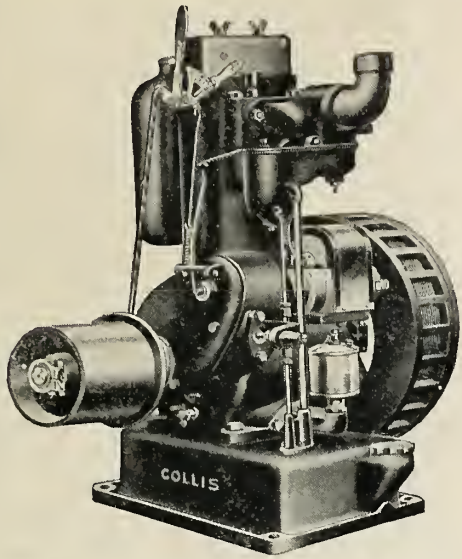


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Yours very truly,
(Signed) Leland Willis, Chief of Experiments
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when you sell your fruits through regular channels. For you can positively get more money over a season by sending your fruits to us to be sold at public sale.

Why? It's perfectly simple and logical.

We get from 250 to 300 buyers to bid for your fruits every day and sell them to the highest bidder, while through ordinary sales channels there are only a small fraction of that number of buyers offered the commodity.

A percentage of our sales is to retailers, who can afford to pay higher prices than if they had to sell to another middleman.

Further, we return to the seller every single cent obtained for his fruit (less our small selling commission), and this fact he can verify from prices in the New York Daily Fruit Reporter. Everything we do is done in the spot light.

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Pedigreed Silver and Cross FOXES for sale. Prices Reasonable. Write for information.
William D. Rambo
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Handling California Fruit for Shipment

(Continued from page 6)

will be no possibility of their crushing one another in transit. For long distance shipping, figs are wrapped and packed in shallow crates, one layer deep. Some shippers do not wrap, but place each fig in a special form (Sykes Pack) somewhat as eggs are packed in a crate.

PEACHES AND PEARS—The packing of peaches and pears is similar to that of apples. Each fruit is wrapped to prevent bruising to reduce the loss of weight by transpiration and to facilitate packing. The question may arise as to the additional time required to wrap each fruit. As a matter of fact, one can, with a little practice, pack much faster by wrapping than by not wrapping, because the wrapped fruits "stay put." The actual time of wrapping is but a fraction of the total time involved in packing.

Space will not permit of a full description of the details of wrapping and packing. This can be learned with a little experience. When the pack is completed, it should be solid and snug fitting throughout and in perfect alignment. There should be a sufficient bulge to compensate for shrinkage during transit. With pear boxes this bulge is very high (2 to 3 inches), while with peaches it is very slight, since the shrinkage of peaches is considerably less.

Shipping

LABELLING—After the box of fruit is packed, certain markings are required for identification of the contents. The state law defines the character of these markings, which includes the variety of fruit, the grade (for apples only), minimum net weight or approximate minimum number of fruits. These facts are printed or stamped on one end of each box, while on the other end is the label of the grower or organization.

INSPECTION AND NAILING—Every box of packed fruit is carefully examined before it is shipped. The nailer is generally the one who is responsible for every box that he passes. He carefully inspects each box, noting the firmness and evenness of pack, alignment and bulge. Only satisfactory packs are nailed; others are returned and repacked.

HAULING—In general, fruit after it is packed must be hauled some distance to a shipping point. The conveyance for transporting fruit should be carefully chosen so the fruit will not be bruised on the way. Automobile trucks with pneumatic tires are most popular for this purpose, while a few use spring wagons. The load should be packed snugly so it will not shift and covered with a light canvass to

protect it from dust and heat of the sun.

LOADING THE CARS—Railroad regulations specify the manner of loading and bracing of the different kinds of boxes of fruit. The first row of fruit boxes is placed across the floor against the ends of the car, leaving an equal space between the boxes and the sides of the car. Succeeding boxes are stacked in tiers, each tier being secured by car strips nailed to the end of the boxes. The cars are loaded so as to leave a space at the doorway for bracing the load.

The minimum load to points east of Chicago is 26,000 pounds. The number of boxes in a car therefore, will vary with the kind of fruit. The following table gives the minimum number of boxes allowed:

Fruit	Lbs. per Box	Boxes per car
Apples	48	245
Apricots and Plums	26	1000
Cherries	11	2364
Peaches	21½	1211
Pears	50	520

ICING—The refrigerator cars contain lump ice in the bunkers at the time of loading. Fruit when put in is usually at a temperature of from 80 to 90 degrees. When this is put into a car at a temperature of 50 degrees, the temperature in the car rises to an average of about 60 degrees. Depending upon the weather and distance, cars must be re-iced enroute in order to maintain low temperatures. By way of Ogden, cars may be iced at Roseville, Cal.; Truckee, Nev.; Carlin, Nev.; Ogden, Utah; Evanston, Wyo.; North Platte, Neb.; Council Bluffs, Iowa; Chicago, Ill; Marion, Ohio, and Hornell, New York. The southern route has icing stations at Fresno, Cal.; Bakersfield, Cal.; Needles, Cal.; Winslow, Ariz.; Belen N. M.; Clovis, N. M.; Wynoke, Okla.; Argentine, Kan. and Chicago, Ill.

MARKETING—It is not within the scope of this article to describe the methods of marketing. We must be able to do with our deciduous fruits what the United Fruit Company has done with the banana and what the California Fruit Growers' Exchange has done with the orange—place them in every home in the land at a reasonable price. The banana is shipped principally from South American countries, and has come to be called "the poor man's fruit" in this country, while the California apricot, plum and pear are redone very soon to acquaint more people with the merits of our fresh fruits, to get them to eat more of them and to regarded as luxuries.

It is evident that something must be due to the minimum cost of growing and getting first quality fruit to the people.

GHIRARDELLI'S Chocolate Sauce



Home
made

—you use it this way:

As a chocolate sauce for ice cream and iced drinks; as a hot or cold sauce for custard and gelatine puddings—yes, and for blanc mange and cottage pudding. [You can make a delicious impromptu pudding out of several slices of stale cake covered with this chocolate sauce.] In fact, you can use it for anything where a pudding sauce is acceptable.

Since 1852

D. GHIRARDELLI CO.

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—you make it this way:

Mix 1 cup sugar with 1 cup Ghirardelli's Ground Chocolate. Add ½ cup boiling water, ⅛ teaspoon salt, and cook 10 minutes or until thick. When cold, add 1 teaspoon vanilla. Store in tightly covered jar. This will make about 1 pint of chocolate sauce and will keep several weeks. Say "Gear-ar-delly" to your grocer and send for our recipe booklet.

GHIRARDELLI'S *Ground* CHOCOLATE

Apple Exporters:

You will require refrigerator or ordinary space for your export shipments of apples. Write or wire

MAHLON TERHUNE

Established 1888

OCEAN FREIGHT BROKER and FORWARDING AGENT

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Blast

**1 1/2 more stumps
per dollar**

BY using Pacific Stumping Powder, you can cut the cost of clearing your land. For 50 cents more than you pay for 85 sticks of any standard stumping powder, you can buy 130 sticks of Pacific Stumping.

Every stick of Pacific Stumping has approximately the same strength as a stick of standard stumping powder, and for land-clearing it shoots with it, stick for stick. And it is non-headache and *non-freezing*. Your saving is 2 1/2 cents (or 30%) per stick.

Think what this new explosive means to you! Nearly 1/2 more acres cleared at the same cost, or the same number of acres cleared at the saving of about 1/3 in cost of dynamite.

Buy Pacific Stumping at your local dealer's. Write for booklet "The Development of Logged-off Lands."

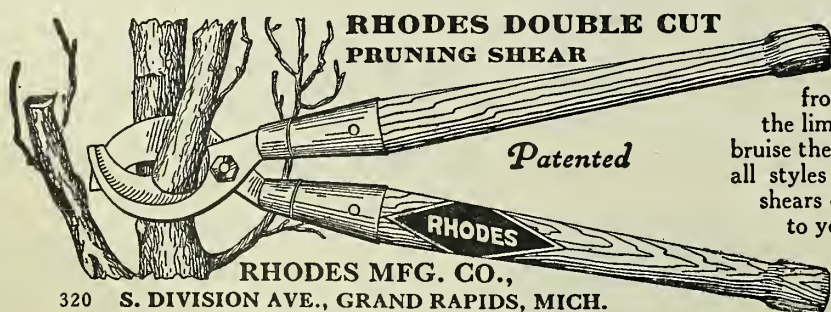
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the limb and does not
bruise the bark. Made in
all styles and sizes. All
shears delivered free
to your door.

Write for
circular and
prices.

Grapes in the Sound Country

(Continued from page 8)

weather man and waited, and it may be said that with November so close at hand, our feelings were none too cheerful, yet dry days came as in the past, and, with a fine willing crew, every grape was picked and brought in dry and packed carefully. Not one basket was reported moldy and top prices were received.

A trial shipment of these grapes was made to California. In spite of the fact that they did not arrive there in first class shape, they were readily disposed of and paved the way for future shipments. Somers Brothers of Detroit, made this shipment from their vineyard and were well pleased with the results of the venture. As soon as enough acreage is planted to produce these grapes in carlot shipments the marketing of them will be simpler. I want to emphasize the fact to you that there is not the slightest danger of over-production of grapes on the Sound. Our grapes come in just after the Eastern Washingtons are gone, so there is no competition.

The Grape Growers' Union of Detroit, shipped 23,600 6-pound baskets in 1921, all to one house at Seattle, and though the prices were not all that could be desired, or as good as the previous two seasons, all things considered, the growers made money.

A six-pound basket is used exclusively, and it should be the aim of each grower to see that each basket weighs six pounds net, and pack only good, sweet and sound, dry grapes. Uniformity of pack and quality among the growers will do more to establish the grape industry of Puget Sound on a solid foundation, create respect and confidence of the people in home grown grapes, and prove them equal to any in size and quality if properly handled.

Arrangements have been completed to hold the Washington Horticultural association and Fruit Growers' conference in Spokane on December 11 to 14. On December 15 the annual grade and pack conference will be held. The annual conference of the Pacific Northwest Potato Growers' association will be held in Spokane November 21 to 24.

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E. E. Conklin, representing the United States Department of Agriculture, has been stationed in Utah to aid in the inspection of certain products leaving the state. U. S. grades are being adopted for apples, pears, peaches, potatoes and onions.

Wider Dependence on Evaporation

(Continued from page 9)

corporations, recently stated to me that within a few years all cut fruits would be evaporated because of the greater cleanliness of the process.

This feeling has already percolated to a considerable portion of the consuming public and the writer was recently told by one broker that he had an order for 100 carloads of evaporated fruit, while another broker told me that evaporated fruit was already receiving a premium over sun dried fruit in his particular market.

The feeling has prevailed that an evaporator was an unduly expensive machine which an ordinary fruit grower could not afford to purchase or operate. This is a mistaken notion. Evaporators have been known to save their entire cost in one year and they will pay a very satisfactory rate of interest every year in the saving of operating expenses, increased yield, and in the premium which the product will enjoy.

They are a tremendous advantage to the individual grower in that they enable the grower to put his fruit in condition so he can hold it until the market will absorb it at proper prices. The grower who is dependent upon shipping his fruit green is subjected to all forms of hazards such as the uncertainties of prices, the glutting of markets, the difficulties of securing transportation, and the perplexities of labor troubles. The grower with an evaporator, on the other hand, dries his product with less labor, places it in his warehouse and receives the fruit buyers at his convenience, selling at his own time and on his own terms.

Numerous evaporators in all parts of the state of California operating on a varied line of products attest the fact that evaporation is no longer an experiment, but from every point of view, a mechanical and commercial success.

Coming Meetings

The Oregon State Horticultural society will meet at Corvallis on November 23 and 24. The meeting will be in conjunction with the Oregon Nut Growers' association, which will have full charge of the program for November 25. Both organizations have been planning programs of merit and it is hoped that the meetings will be well attended. The Corvallis sessions will be preceded by a conference of government and state experts on the white pine blister rust, which will open in Portland, November 22 and will continue through the following day.

Woodburn Association

THE Woodburn Fruit Growers' Co-operative association organized last spring, has had a very successful season. The association delivered over 700 tons of berries for which it received cash, netting the members over \$65,000. The overhead expense was less than one per cent.

This meant the saving of the berry industry in this section of the state as many of the growers have not as yet received their money for the 1921 crop, and another year of waiting would have put them out of business.

The sale of the association pool for cash resulted in the payment of cash by the local canneries and as they handled more than the association pool the growers here have received a neat sum in cash for this year's crops.

Present indications are that if the association so desires it can readily increase its acreage and tonnage for next year to nearly double that of this year.

Storage of Pears

Gordon G. Brown and Leroy Childs, respectively horticulturist and superintendent of the Hood River Experiment station, have begun experimenting on a large scale with D'Anjou pears in an effort to determine the comparative keeping quality of fruit picked at different stages of maturity. Fruit just turning, that medium ripe and that fully matured are used in the tests. The pears are stored under refrigeration and in ordinary ventilated plants. The experiment station men last winter found that pears allowed to mature held up much better than those picked earlier.

You do everyone concerned a favor by mentioning BETTER FRUIT when answering an advertisement.

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season

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Reliable Stock from
Good Assortment
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We have a mighty fine selection of GOOD Used Cars at the lowest prices ever placed on cars of like quality.

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Skinner Packing House News
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Prune and Cherry Trees

We can supply these in large commercial plantings. Also general line of choice nursery stock. Send us your want list.

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Of National Importance

IS THE

Wonderful Exhibition

OF

Northwest Fruits

That are to be displayed in the Bell Street Terminal, Seattle, Wash., November 11 to 19, 1922

The Second Annual event of the Pacific Northwest Fruit Exposition promises to be one not to be missed at any cost

Thousands of dollars and valuable trophies are to be given as prizes for fruit displays. Every one invited to compete. Send to Manager Winnie Braden, 810 Arctic Building, Seattle, Washington, for premium list.

VISITORS BY THE TENS OF THOUSANDS
WILL BE THERE—WILL YOU?

November 11th to 19th

Marketing News of Interest

OPTIMISM over the apple market has been increasing in the Pacific northwest the past three weeks, though it is fully recognized that prices need not be expected to equal those of a year ago. The situation would doubtless be considerably better were it not for the prevailing car shortage. Despite the pre-harvest promises of all railroad representatives the shortage is with us again. It is particularly unfortunate this year in view of other price depressing influences that exist.

Sales of apples have been lagging in practically every district. The same is true, of course, of potatoes. Growers of the Hood River district are hopeful that prices for late varieties of apples will move upward. There is ground for such an expectation and the greater supply of cars which will be available should also be a factor favoring betterment of prices for the winter varieties.

Demand for boxed apples in New York and other big centers seems to have strengthened a little in recent days and prices are generally high enough to leave some little margin for profit to the grower and shipper. The latest auction prices in New York, for October 20, were announced as follows:

3464 boxes extra fancy, Jonathans, large \$2.25 to \$2.65, a few \$2.80 to \$3.20, med. \$2.10 to \$2.50, small, \$1.85; Fancy, med. to large \$1.95 to \$2.10; C grade, med. to large \$1.70 to \$1.85. 535 boxes, extra fancy, Winter Bananas very large \$2.50 to \$3.00, large \$2.25 to \$2.35, medium \$1.75 to \$2.15; Fancy, very large, \$2.35 to \$2.20, med. to large \$1.85 to \$2.25.

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GOVERNMENT shipping point information on northwest apples, as sent out from Spokane on October 23 was this: Carloads F. O. B. usual terms. Wenatchee valley: Jonathans, extra fancy, medium to large \$1.30 to \$1.35. Delicious, extra fancy, medium to large \$2.15 to \$2.25, few \$2.30 to \$2.40. Spitzenburgs, extra fancy, medium to large \$1.50. Romes, extra fancy, large \$1.50. Yakima valley: Jonathans, extra fancy, medium to large \$1.35 to \$1.40. Winesaps, extra fancy, medium to large \$1.65, small \$1.20. Other districts: Jonathans, fancy \$1.00 to \$1.20. Spitzenburgs, extra fancy, medium to large \$1.40 to \$1.45.

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THE government October crop report fixed the apple crop of leading producing states in barrels, (one barrel equals three boxes) as follows: Washington, 6,965,000; New York, 5,961,000; Michigan, 1,664,000; California, 1,644,000; Oregon, 1,568,000; Illinois, 1,566,000; Pennsylvania, 1,254,000; Missouri, 1,227,000; Idaho, 1,068,000. The total as estimated for the United States this year is 31,637,000 barrels as compared with a crop of 21,204,000 last year.

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IN POTATO production Idaho is this year rated as the eighth state. It is surpassed, according to government figures by these states, in order of their estimated crop: Minnesota, Wisconsin, Michigan, New York, Maine, North Dakota and Colorado. Idaho's crop was placed at 14,767,000 bushels, as compared with 10,545,000 bushels in 1921. California's potato crop is estimated at 10,719,000 bushels; that of Washington at 8,579,000 bushels; Montana's at 7,031,000 bushels; Oregon's at 5,373,000 bushels and Utah's at 3,992,000 bushels.

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IN FACE of the shortage of refrigerator cars the Apple Growers' association of Hood

River, two weeks ago resorted to box-cars in making eastern shipments of apples. Two trainloads, one of 35 cars and another of 26 cars, were sent forward in box-cars. Total shipments reached 240 cars by October 15. In the Wenatchee district the shippers have been rather consistently refusing to use box-cars.

WORM damage to apples has been unusually severe the past season. There is hardly a district in the Pacific Northwest which has not had its yield cut down materially by this damage. The Yakima valley, for instance, suffered severely in this respect, according to reports from there. Original estimates of the valley's crop were cut from 14,000 cars to 8800, a 37 per cent reduction, most of which was attributed to worm damage. Unofficial report from White Salmon stated that pre-harvest estimates there were cut 50 per cent. The damage in Winter Banana orchards was particularly extensive around White Salmon.

APPLE shipments from Watsonville, Cal., to the first of October were 620 cars, of which but 122 cars were shipped east. To the same date in 1921 shipments from the district aggregated 1047 cars.

Our Inquiry Department

IWOULD like to preserve a few apples in a glass jar for exhibition purposes. Will you please tell me what sort of a solution I should put them in?—R. B. C., Idaho.

If the apples are red in color a different liquid is recommended than if they are yellow. From the manual of Cruess and Christie these are the instructions for preserving specimens of red apples: Fix the color first by leaving for 24 to 36 hours in a solution composed of 1 gallon distilled water, 1 ounce sulphurous acid (six per cent solution), 1/2 ounce formalin and 10 ounces glycerin. When the color has been fixed, store the specimens in a solution composed of 1 gallon distilled water and 1 ounce of the sulphurous acid. This solution should be changed every six months.

If you are preserving yellow apples it is not necessary to fix the color, but may put them at once in a solution composed of 1 gallon distilled water, 1/8 ounce potassium nitrate, 1 ounce boric acid, 6 ounces glycerine, with a bit of copper sulfate added to give a faint green tinge. This solution is also recommended for ripe pears.

IWANT to put in a protest as to how you classify the Winter Banana apple in your table of varieties in your October issue. You classify it as a good eater, but a poor cooker. I don't know where you procured your information, but if you buy a box and try them as cookers I know you will be surprised at the results.—F. W. R. Oregon.

Your protest is well received—by which we mean that we are glad to have you or any other reader write in comment or criticism on articles that appear in BETTER FRUIT. You direct the protest at us, however, as though we had written the article which, of course, we did not do. The article and table were prepared by W. H. Olin and were printed without change. He went to a lot of trouble, as stated in the article, to obtain from excellent authorities the best information they could give him on the subject.

Of our own accord we would have been inclined to put two "yeses" after the Winter Banana as you suggest. The fact that he did not recommend it for cooking purposes does not necessarily brand it as a poor cooker. Note that he was writing about "Using Apples When



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The best of every variety—from whole roots—properly matured.

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Nice Bright Western Pine Fruit Boxes and Crates

Good standard grades. Well made. Quick shipments. Carloads or less. Get our prices.

Western Pine Box Sales Co.

SPOKANE, WASH.

Catalog mailed on request.

at Their Best." We believe he had in mind at the same time the idea of arranging a sort of recommended apple calendar, running through the entire year, from July to June, as you will note. In this scheme of things he gave preference for cooking purposes during the fall to other varieties and suggested the best use of the Winter Banana as that of a dessert apple from November to and including January.



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You, too, can be beautiful. You can possess that most desired gift, to charm. Use the California beauty secret. Many famous movie actresses in Los Angeles are using our beauty secret. The cheapest and best known road to beauty. We are mailing it on receipt of one dollar. Money promptly refunded if not satisfactory.

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Dept. 402, 342 South Broadway
LOS ANGELES, CALIFORNIA

Reference: Citizens Trust & Savings Bank, Los Angeles, California

WASHINGTON

A CONTRACT for erection of a \$450,000 ice manufacturing and cold storage plant at Chelan has been awarded by the Great Northern railroad. It will have a capacity of 400 carloads and will be ready in January. The company has contracted for the output for a period of 20 years.

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WITH sales of properties of the old Puyallup & Sumner Fruit Growers' Canning company to the Pacific Northwest Canning company approved by court, G. H. Bradt, vice-president of the new firm announced these as officers: W. G. Allen, president; W. J. Vary, vice-president and general manager; Mr. Bradt, vice-president; A. F. Pfeiffer, secretary, treasurer and sales manager; George W. Haney, assistant secretary-treasurer and cashier and E. D. Boyles, assistant sales manager and traffic manager.

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THE Northern Pacific railway will feature Yakima apples in its dining car service as it formerly featured the "Big Baked Potato," according to announcement made by L. K. Owen, superintendent of the dining car service, who was in Yakima recently making arrangement for the purchase of 5,000 boxes.

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A NEW peach has been added to the varieties produced around Yakima, Wash. It is known as the Zickler peach and originated, so far as its history is known, on the E. H. Zickler place near Buena. It colors earlier than the Elberta, has less fuzz in its skin, the fuzz being more like sandpaper.

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AT THE Yakima County Farm Bureau potato and corn show, recently held, it was stated by R. N. Miller that in 1920 it cost \$223.50 to grow an acre of potatoes in the Yakima valley. Seventy per cent of the cost was for production and 30 per cent for harvesting, he said.

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R. R. PAILTHORP of the United States Department of Agriculture has been in the Yakima district this fall studying the efficiency of storage plants, including those where common storage only is used.

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AN AUTOMATIC apple box making machine developed by a California concern has been on exhibition at the packing warehouse of the Stubbs Fruit & Storage company at Yakima, attracting much attention. The machine is said to make boxes as fast as eight men could make them.

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J. E. SLADE, orchardist of Hood River and Husum, has begun work on a rather extensive irrigation system by which he plans to put water on his orchards at Husum. He will take water from the White Salmon river. This is a pioneer effort to practice irrigation in this district and is being watched with much interest.

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C. R. ALDRICH, Seattle business man, has purchased the 16-acre orchard of bearing apples of H. G. Chadbourne at Cashmere. The price was reported as \$26,000.

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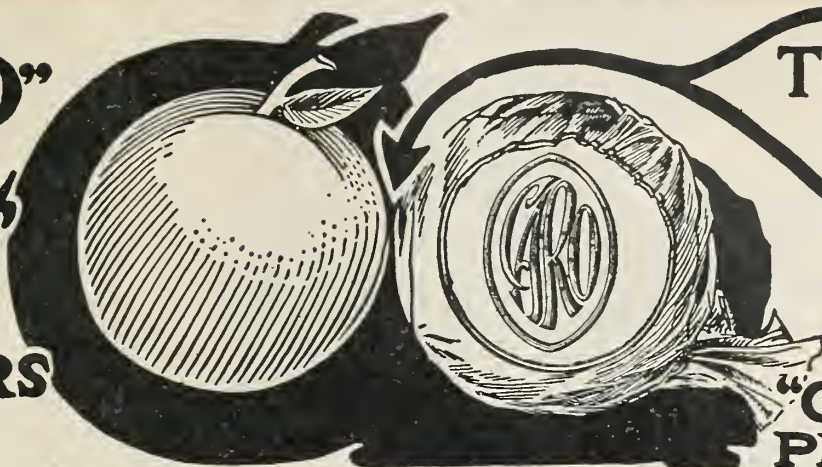
TWO carloads of oil fruit wraps were purchased by Yakima apple shippers at one time. Nearly every shipper of the district made a purchase for the purpose of fully testing the merits of oil wraps this season.

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AS RESULT of demonstration work by M. D. Armstrong of the Washington State college and H. B. Carroll, county agent in Whatcom county, many growers of berries in that county sowed cover crops of rye or vetch.

Follow the Violet Lines. There is Merit in the Wrapper.

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fruit
WRAPPERS



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"CARO"
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"Caro" Protects—"Caro" Prolongs the Life of Fruit—Why?

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FRUIT DECOMPOSITION starts from a bruise which opens tiny holes and permits juice to escape and BACTERIA to enter. "Caro" clings closely and dries up the escaping juice. "Caro" ingredients harden the spot, destroy BACTERIA and FUNGUS SPORES and arrest decomposition.

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offers a complete line of fruit trees including Anjou, Bosc and Bartlett Pear, Delicious, Ortley and Red Gravenstein Apple and other leading varieties of Pear, Apple, Cherry, Peach, Apricot, etc. Our trees are grown mostly from buds, selected from our own bearing orchards and all guaranteed true-to-name. If interested, write us. True-to-Name Nursery, Hood River, Oregon.

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POULTRY FARM**
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The home of Virginia Games,
Black Breasted Red, Pit,
and fancy exhibition game
Chickens. Special inducements offered for November and December.

OREGON

BECAUSE of the warning by the United States Bureau of Chemistry that apples showing traces of spray deposit would be condemned, special care in wiping has been exercised by Hood River packers. A new type of wiping machine was tried out by some with fair success.

TESTS made this fall in the Umpqua valley are said to have demonstrated the success of the new re-circulating system of drying prunes worked out by Professor E. H. Weigand of Oregon Agricultural college.

IT IS SAID at Hood River that the low prices received for strawberries the past season will result in a considerable decrease in acreage next season. Growers on higher altitudes, where the berries ripen late, are especially inclined to drop the berry game. The estimated acreage this year was 750 acres and may not be greater than 550 acres next year.

AT MYRTLE POINT, Norton & Campbell had 105 acres in potatoes this year. Seventy acres were in American Wonders, 30 acres in Burbanks and about 5 acres in Netted Gems. They expect a yield of 12,000 sacks.

THE Oregon Bulb company was recently incorporated at Salem. It will continue the thriving business of the old firm of Franklin & Dibble. James Forbes is president; W. C. Franklin, vice-president; Rollin K. Page, treasurer, and W. C. Dibble, secretary.

MEDFORD'S 1922 apple show will open on November 4, and entries close the evening before, that the judging may be completed before the show opens. Classification of exhibits will be the same this year as last.

FLETCHER FISH has been appointed to serve as federal inspector of all fruit shipped from the Rogue River valley.

GRANGE members of Hood River county opened a store in Portland from which to market their orchard products this fall.

AT ROSEBURG A. E. Petty received the appointment to serve as state and federal fruit inspector. He has had 15 years in the wholesale fruit and vegetable business.

F. M. GREEN, county fruit inspector at Hood River, was named as federal fruit inspector for the district and has been serving in this capacity. Green's appointment was made on the recent visit at Hood River of Wells A. Sherman and F. S. Kinsey, of the federal service.

CALIFORNIA

ONE thousand dollars per acre net from five acres of six-year-old and one acre of five-year-old Tilton apricots is the record claimed by Roy Day of Stanislaus county for this season. Mr. Day, formerly a Kansas wheat farmer, paid \$1200 an acre for the trees in 1920.

ACCORDING to County Horticultural Commissioner J. O. McKinney, of Hollister, the cost of treating trees for pear-borers by use of paradichlorobenzene averages from $3\frac{1}{4}$ to 4 cents per tree, for both material and labor.

CHERRIES sent unusually early from Yuba City and bringing fancy prices are of the Chinese variety and of inferior quality, according to explanation of R. W. Skinner, one of the growers. The fruit is very small, yellowish when ripe and so soft it does not ship.

FROM six peach trees of the Mayflower and Muir varieties set out in March, 1920, S. D. Bickford of San Gabriel this season obtained 240 pounds of good peaches.

NEW pear plantings in Napa county, reported by Horticultural Commissioner W. D. Butler, are given as 550 acres. Prune plantings

aggregated 600 acres, he stated, as compared with an average during the years 1916-20 of 1000 acres annually.

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THE first carload of 1922 prunes shipped from Napa county was started eastward on September 16. This carload, which went to Chicago, brought a premium because of being so early.

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GRAPE acreages in the Oakdale district doubled during the current year. The crop census showed that 19,002 acres of grapes are under irrigation in this section.

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ONE DAY during the season the Marysville and Yuba City district set a high record by sending out two solid trains of peaches, one of 85 and another of 60 carloads.

Washington Growers' Corporation Notes

POTATO growers are wondering if they will receive enough for their potatoes to pay for producing them. There are always many growers who have no facilities for storing their potatoes. As a result lots of stuff is finding its way into the markets now causing a glut. Those in touch with the situation express the belief that it will be the first of the year before potatoes now being forced on the markets are cleaned up. These same authorities believe that good quality potatoes will bring a better price later.

Potato growers who have facilities for storing their potatoes are advised to work off the poor stuff now and hold the good potatoes for a later market. This applies especially to those having Burbank potatoes that will make good seed, and also applies to the Netted Gem variety.

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IT WILL be late in November before the association will have completed grading the new crop prunes. Present indications are that this section will grade about 11 per cent 30-40's and 65 per cent 40-50's. The remaining 24 per cent is divided between the other sizes such as 50-60's, 60-70's and 70-80's.

Early in the season, before harvesting time or the prunes had begun to turn, the association booked a large volume of business. A large percentage of 30-40's was included in the assortment offered the trade. The association is fortunate in being able thus far to supply 75 per cent of the 30-40's specified in these early contracts. No more orders for 30-40's are being accepted.

Clarke county has the reputation of producing larger sizes and a better assortment than almost any other section growing Italian prunes. She is living up to this reputation this year. Many growers are coming into the organization. Upwards of 20 growers have been signed up during the past two or three weeks.

The association is advancing four cents a pound on prunes upon delivery. This is enabling the growers to take care of their harvesting expenses and gives them a little to go on until the next payment which the organization hopes to make during December. Over 4,000,000 pounds of prunes have been received at the packing plant and they are still rolling in. It is not unusual to see a dozen or more truckloads of prunes awaiting their turn to unload.

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IN THE near future we hope to have a meeting of all members of the strawberry department of the organization. This will be for the purpose of making a complete statement of the affairs of this department.

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With the Poultry

USE OF ARTIFICIAL LIGHT

COMMERCIAL poultrymen of California have been illuminating their laying houses for several years during the fall and winter months, and the practice is accepted as part of the management on the commercial ranch, although it is recognized that there is a time limit and that lights should not be used indiscriminately on all stock on the place. At present there is a small reaction against the practice of illumination; those that are advocating the non-use are convinced that breeding, the foundation of all high egg production, will produce results equal if not better than the use of electric lights. Poor hatches, weak chicks and worn-out hens have caused this reaction. But the real cause in many cases may not have been due to lights, as many other factors contribute to the same end.

The prevailing practice of those using electric lights in the laying houses is to start lighting the pens during the first half of October. The electric timing switch or appliance is set so that the lights go on about half an hour before daylight.

The use of lights introduces other factors of importance, especially feed and exercise. Dry mash must be available in hoppers when fowls come off the roost or the birds will react unfavorably and the use of lights will prove to be a waste of time and money. A deep litter is essential where fowls will have to work for their grain. This starts the circulation of blood in the fowls during the cool winter mornings. Fowls forced off the perches, but not made to exercise will not give desired results.

The late feeding at night of the bulk of grain or an extra heavy feeding at night should always provide for some grain that will be left in the litter the next morning. Very often all factors are ideal except sufficient light. This results in poor success, if any, as fowls must see to eat when they get off the roosts. There should be at least two 50-watt Mazda lamps for each 300 square feet of floor space. These should be hung low enough so that light reaches all parts of the floor space of the house.

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NOVEL SCALY LEG CURE

"THE oil drained out of the crank case of an auto is excellent for controlling scaly leg or for painting roosts, etc., to control mites," says G. L. Stevenson, professor of poultry husbandry at South Dakota State college. "A rough, scaly condition of the hen's feet and legs is often thought to be an evidence of age, whereas in reality it is a diseased condition brought about by the activity of a kind of mite which burrows under the scales of the legs and sets up an irritation finally resulting in the condition indicated. The disease is not difficult to control. Dipping the legs and feet once or twice in crude oil or half-and-half mixture of kerosene and linseed oil will usually suffice. Kerosene works fairly well alone, but lacks body and may cause blistering if it gets into the feathers."

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IF YOU have good alfalfa hay you can be practically independent as far as succulent winter feed for your poultry is concerned. In its absence be sure to provide substitutes in the way of green vegetables.

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Hens first off the roost in the morning and last on at night are the birds that lay lots of eggs.

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Crowding induces disease and lowers the vitality of fowls.

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Bees and Beekeeping

Edited by AMOS BURHANS

WINTER WORK WITH BEES

BEES need feed in the winter time as well as man. When the beekeeper misjudges the amount of food needed for the bees during the winter, it is necessary to place some in the hive for their use. This may be done, suggests B. A. Slocum, extension bee man of the Washington State college, by slipping a frame of honey or candy, next to the cluster on a warm afternoon. The following is a good recipe: 12 pounds granulated sugar, one and one-half pounds liquid glucose, one and one-fourth quarts of water and one-fourth teaspoonful cream of tartar.

This candy is made by using a good grade of granulated sugar. The water should be heated and the sugar added only as fast as it will dissolve, in order that it will not be scorched. The glucose may be added before or after the sugar. When the sirup comes to a boil, add the cream of tartar. As soon as the sirup is boiling, remove and stir until thick enough to pour into moulds. To make the moulds, take a standard Hoffman frame (wired) and nail a thin board on one side. This board may be removed when the candy is cold. One then has a frame of candy which may be slipped down next to the cluster. The above recipe will fill two frames.

Mr. Slocum advises beekeepers to use the winter months in shop work. He says that work may be completed which will lighten labor during the honey season. "Hive bodies and supers may be set up," he says, "frames wired, foundations imbedded and other similar work done, for there is more time now than during the honey flow. Full sheets of medium brood foundations should be used for extracted honey and light weight foundations for comb honey.

"A study of beekeeping literature during the winter evenings, is time well spent. It creates more interest in the work and equips the reader better for the season. Lay specific and definite plans for the coming year. This does not include the concocting of a lot of experiments, but a definite move forward in an effort to keep up with the advancement of modern beekeeping. It pays to keep records on the colonies, so that culling may be done if necessary.

"Where possible obtain pure mating of queens, raise queens from colonies which give the greatest surplus, and requeen those colonies which do not produce.

"Keep the number of colonies of bees which you can handle, for it is better to secure 100 pounds of honey from one stand than 50 pounds from two. It means less work and less money invested. Unknown quantities of honey are never stored by the bees because they lack ample super room, therefore have at least four comb honey supers or three extracting supers ready to place."

MOVIES TEACH BEEKEEPING

BEKEEPERS will be interested in a new motion picture prepared by the United States Department of Agriculture showing the best practice in handling bees and the control of bee diseases. The film, which is called "Keeping Bees at Work," is intended to supplement a picture, entitled "Bees—How They Live and Work," issued some time ago for more popular use.

The new picture shows the need for requeening the colony from time to time, the way to prepare the bees for wintering, the time to unpack the hives, the control of the swarm, and other details of management. The fact that the bureau of entomology will examine samples of combs to identify diseases and advise on their control is brought out.



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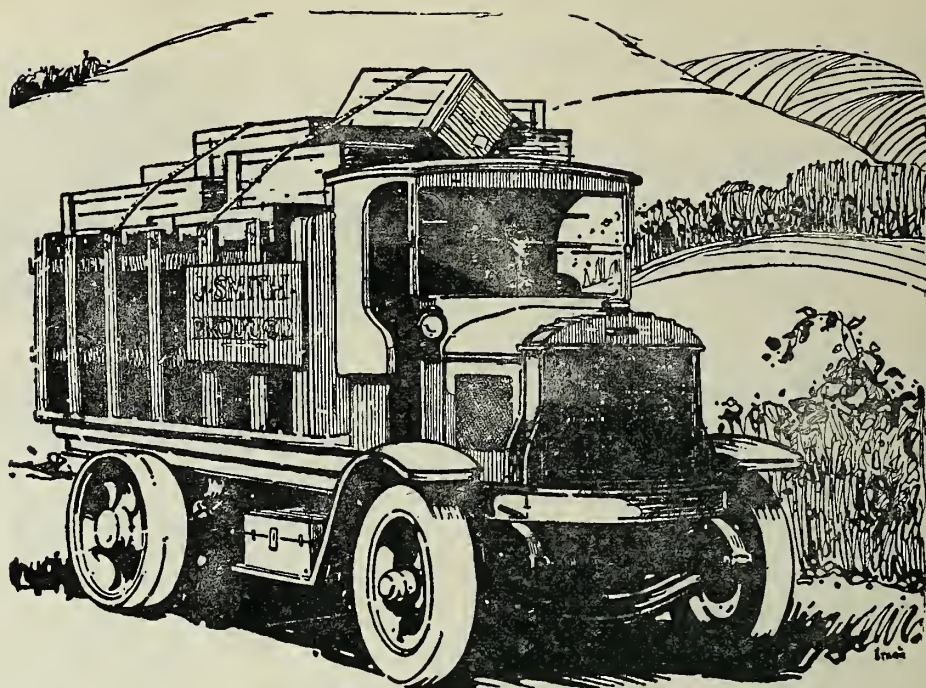
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